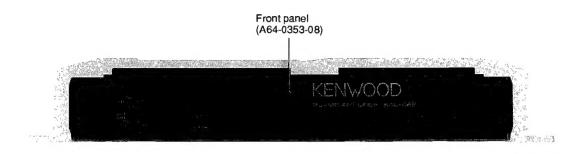
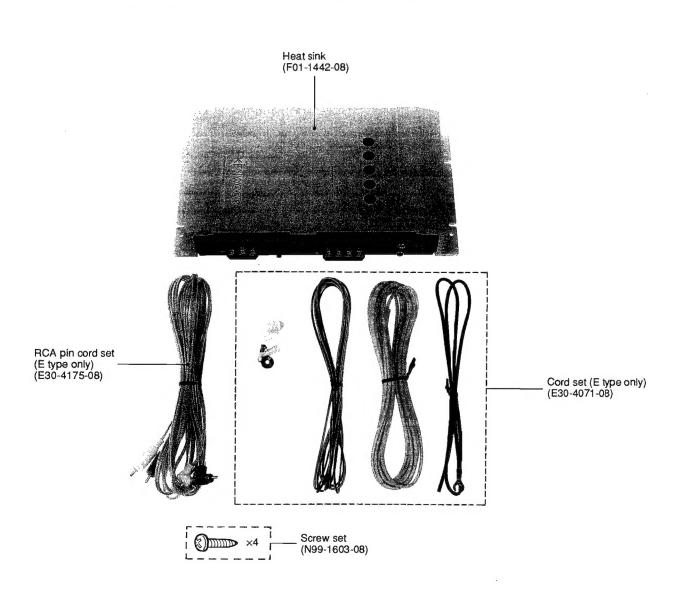
**POWER AMPLIFER** 

# KAC-Q62 SERVICE MANUAL



© 1994-3 PRINTED IN JAPAN B51-6691-00 (B) 3665





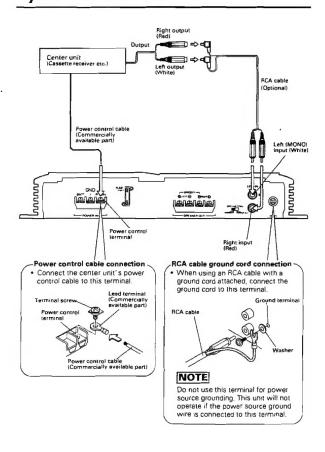
# KAC-Q62

# **CONTENTS**

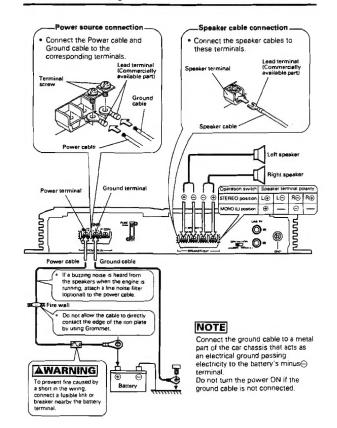
CONNECTION2	SCHEMATIC DIAGRAM	11
BLOCK DIAGRAM4		
CIRCUIT DESCRIPTION5		
ADJUSTMENT/ABGLEICH7	SPECIFICATIONS	BACK COVER
PC BOARD (Foil side view)9		

# **CONNECTIONS**

## **System Connection**



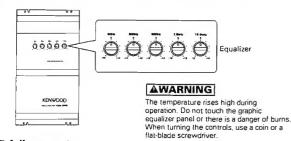
## Power and speakers cable connection



# **CONNECTIONS**

## Point 1 Graphic Equalizer

This unit is a power amplifier incorporating a graphic equalizer. The 5-band graphic equalizer provides signal equalization for the amplifier.



#### Adjustment

Adjust the level of each frequency band as desired.

· To increase the level:



· To decrease the level:

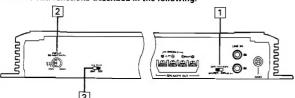


#### NOTE

If the treble or bass control is increased on the center unit and the graphic equalizer levels are increased at the same time, the sound may be distorted. Please adjust the graphic equalizer taking the balance with the positions of the treble and bass controls of the center unit into consideration.

## Point 2 Flexibility

KAC-Q62 is compatible with a large variety of systems by combining the switches and functions described in the following.



#### 1 Operation switch

This switch selects the input method of the signals to be amplified by amps A and B.

#### STEREO position

The input left and right signals are amplified separately. Use this position when the unit is used as a stereo amplifier.

#### MONO(L) position

The input left signal is amplified twice the normal boost level. Use this position when the unit is used as a high-power monaural amplifier. (The input right signal is not output.)

#### 2 Filter switch

These switches allow filtering of the output signals.



· HPF(High Pass Filter) position (12dB/oct. slope)

Only frequencies of 80Hz or higher are output. (Frequencies below 80Hz are cut. )

 OFF position The original sound without filtering is output.

#### 3 Input sensitivity

Adjust this control according to the pre-out level of the center unit



Center unit pre-out level	Amplifier input sensitivity
300 mV	MAX (0.15 V)
800~1000 mV	0.3 ∨
1.5 V	0.5 V

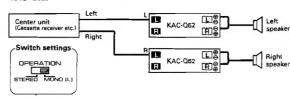
# Refer to "Specifications" on the center unit's instruction manual about the pre-out level.

## System Examples

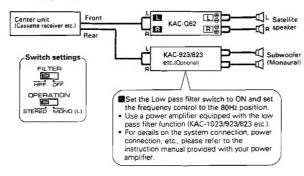
By combining the switches and functions of the KAC-Q62, you can implement a wide range of audio system configurations.

#### **■** Example 1

A high-power system can be implemented by combining two units of KAC-Q62.



#### **■** Example 2

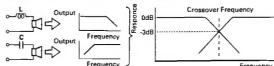


### Point 3 Tri-mode

With the KAC-Q62, a subwoofer can be added easily to the speaker system by making use of the properties of coils and capacitors. This mode of operation is called Tri-mode

#### ■ Principle of Tri-mode

· Method of frequency band division using a coil and capacitor ... in case of 6 dB/oct. slope

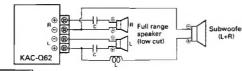


- · Coil (L): Passes low frequencies and blocks high frequencies. (Low pass)
- Capacitor (C): Passes high frequencies and blocks low frequencies. (High pass) Your coil and capacitor
- ing formula to identify the coil and capacitor you need in your system 159000 159 × R - (mH) fc=Crossover Frequency (Hz) R=Speaker Impedance (Ω) fc × R

**Example:**When it is required to set a crossover frequency of 120 Hz using speakers with an impedance of 4 ohms, Prepare commercially-available coil and capacitor with the closest ratings to the results calculated from the formula above. The capacitor rating should be as close as possible to 331.25 (uF) and the coil rating should be as close as possible to 5.3 (mH).

#### ■ System example

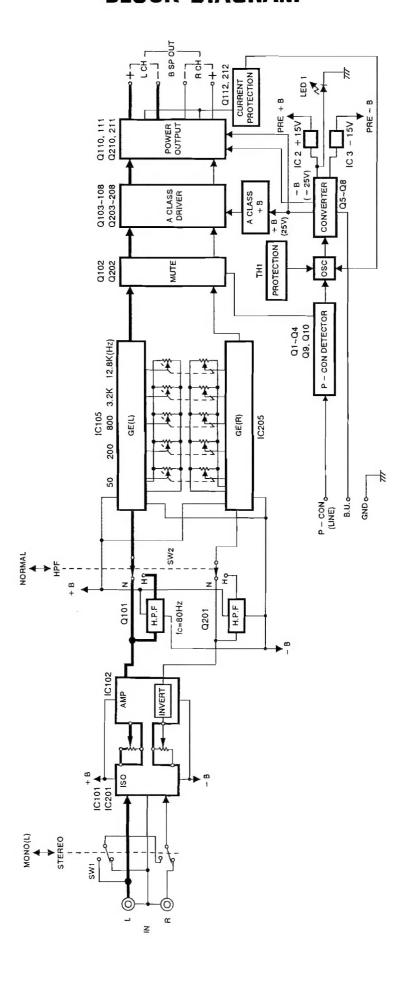
To use the Tri-mode configuration, set the OPERATION switch to the STEREO



#### **ACAUTION**

Compose the speaker system so that the overall speaker impedance seen from the amplifier unit is no less than 2 ohms. If the impedance is less than 2 ohms, excessive current may flow and the amplifier unit may be damaged.

# **BLOCK DIAGRAM**



# KAC-Q62 KAC-Q62

# **CIRCUIT DESCRIPTION**

#### DC-DC PWB

Ref. No.	Ref. Name	Purposes, Functions	Operation, Condition, Compatibility
IC1	UPC494C	OSC for DC/DC converter	Clock oscillator, protection comparator.
IC2	NJM78M15FA	+15 V regulator power IC	+15 V supply.
IC3	NJM79M15FA	-15 V regulated power IC	-15 V supply.
Q1	2SC4640T/U	Switch	Transistor accepting the P.CON signal. ON when P.CON is H, OFF when it is L.
Q2	DTA124ES	Power ON/OFF	Turns OSC IC ON/OFF and muting circuits power ON/OFF.
Q3	2SC4640T/U	Mute control (SW)  Power amp power control SW	Muting is turned ON by P.CON ON $\rightarrow$ Q3 OFF $\rightarrow$ Q4 ON. Power is supplied by P.CON ON $\rightarrow$ Q9 ON $\rightarrow$ Q10 ON.
Q4	DTA124ES	Mute driver	Driver of muting transistors Q1 02 and Q202
Q5, 6	2SA1782T/U	Discharging Transistor	Transistors for discharging the potential charged as gate capacitance of MOS FETs Q7 and Q8.
Q7, 8	2SK1257	MOS FETs for DC/DC converter (for current amp)	ON when gate is H, OFF when it is L. Push-pull configuration.
Q9	DTC124ES	Q10 driver	With time constant. Goes ON to turn Q10 ON when the set is operating.
Q10	2SA1782T/U	Power amp power SW	Delays the power supply to prevent shock noise. ON while the set is operating.
D1	RM4ZLF		
D2, 3	1SS131	Q2 and Q3 malfunction prevention	
D4, 5	1SS131	Q4 and Q9 malfunction prevention	
D6	1SS131	Reverse current prevention	Isolation between IC1 current and the cathode of D11.
D7, 8	1SS131	Q5 and Q6 malfunction prevention	Retains bias voltages of Q5 and Q6.
D9	FMU12S	Secondary + power rectifier diode	
D10	FMU12R	Secondary – power rectifier diode	
D11	1SS131	Voltage retention of muting driver Q4	Retains the muting power when P.CON goes OFF.
D12	1SS131	Noise prevention against Q10 ON/OFF	Delays the switching of Q10 to reduce P.CON ON/OFF shock noise.
D13, 14	DSK10C	3-terminal regulators for IC2 and IC3 malfunction prevention	Prevents output malfunction (latch down) of IC2 and IC3 when P.CON goes ON/OFF.

# **CIRCUIT DESCRIPTION**

### MAIN PWB, GE PWB

Ref. No.	Ref. Name	Purposes, Functions	Operation, Condition, Compatibility
IC101, 201	NJM4565LD	Isolation amps	
IC102	NJM4565LD	Differential amp	L CH positive phase and R CH negative phase amplification. (R CH used in TRI mode only)
C105, 205	M5227P	GE IC	5-point: 50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 12.8 kHz. Variable range $\pm$ 10 dB.
Q101, 201	2SC4640T/U	Active Transistor for HPF	
Q102, 202	2SC4640T/U	Muting Transistor	ON for muting, normally OFF.
Q103, 104, 203, 204	2SA1782T/U	Differential amps in main amp 1st stage	
Q105, 106, 205, 206	2SC2784(F)	Differential amps in main amp 2nd stage	
Q107, 207	2SD1200(Q)	Idling current temperature compensation Transistor	Idling adjustment using VR102/202 between collector and base. (Idling current: 30 mA)
Q108, 208	2SD2225(R)	Power amp drivers	
Q109, 209	2SB1473(R)	Power amp drivers	
Q110, 210	2SC4385(O, Y)	Main amp power Transistor	
Q111, 211	2SC1670(O, Y)	Main amp power Transistor	
Q112, 212	2SC4640T/U	Overcurrent detection Transistor (for protection)	Detection based on the potential difference of emitter resistance during load overcurrent.
D101-104, 201-204	1SS131	Electrostatic breakdown protection	
D105, 205	1SS131	Muting (crosstalk improvement)	
D106, 206	1SS131	Malfunction prevention of overcurrent detector circuit	
D107, 207	1SS131	Malfunction prevention of error amp IC7	Isolation between thermal shutoff detector circuit and load overcurrent detector circuit.

# ADJUSTMENT/ABGLEICH

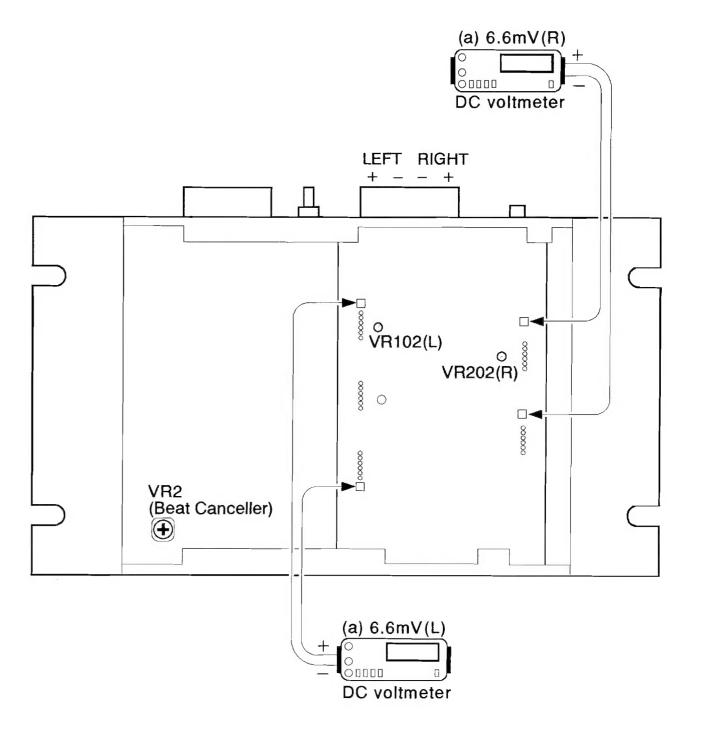
### **ADJUSTMENT**

No	ITEM	INPUT SETTINGS	OUTPUT	SCASSETTE RECEIVER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG
С	onnect a cas	sette receiv	er.				
1	BEAT CANCELLER	_	_	Receive AM BROADCAST STATION	VR2 (DC-DC PWB)	Only when there is BEAT NOISY SOUND. Ajust to minmal position.	
2	IDLE CURRENT	_	Connect a DC voltmeter to TP (MAIN PWB)	VOLUME: 0	VR102 (Lch) VR202 (Rch) (MAIN PWB)	6.6mV (30mA)	(a)

# **ABGLEICH**

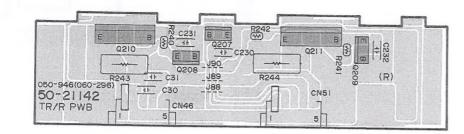
NR.	GEGENSTAND	EINGANGS- EINSTELLUNG	AUSGANG- EINSTELLUNG	VORSTÄRKER- EINSTELLUNG	ABGLEICHE- PUNKTE	ABGLEICHEEN FÜR	ABE
1	INTERFERENZEN- UNTERDRÜCKER	_	_	MW-RADIOSENDER emofangen	VR2 (DC-DC PWB)	Nur wenn INTERFERENZEN oder STÖRGERÄUSCHE vorhanden sing. Auf die minimelposition.	
2	LEERLAUF- STROM	_	Einen Gleichspannungs- messer zu TP (MAIN PWB) anschlieβen.	VOLUME: 0	VR102 (Lch) VR202 (Rch) (MAIN PWB)	6.6mV (30mA)	(a)

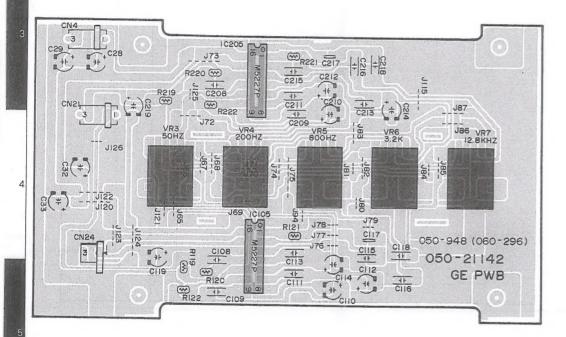
# **ADJUSTMENT**

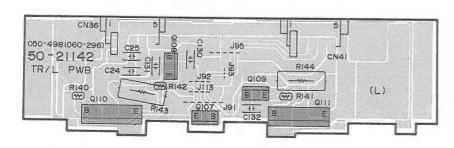


# PC BOARD (Foil side view)

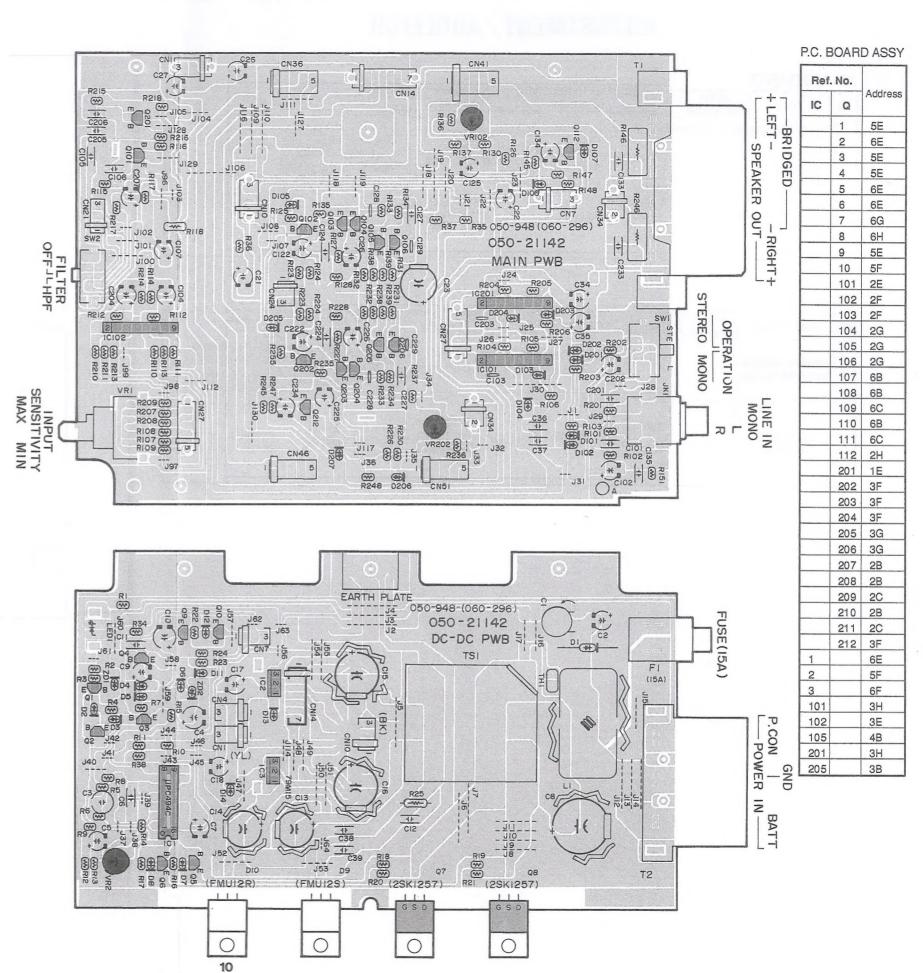
P.C. BOARD ASSY (W02-1438-08)

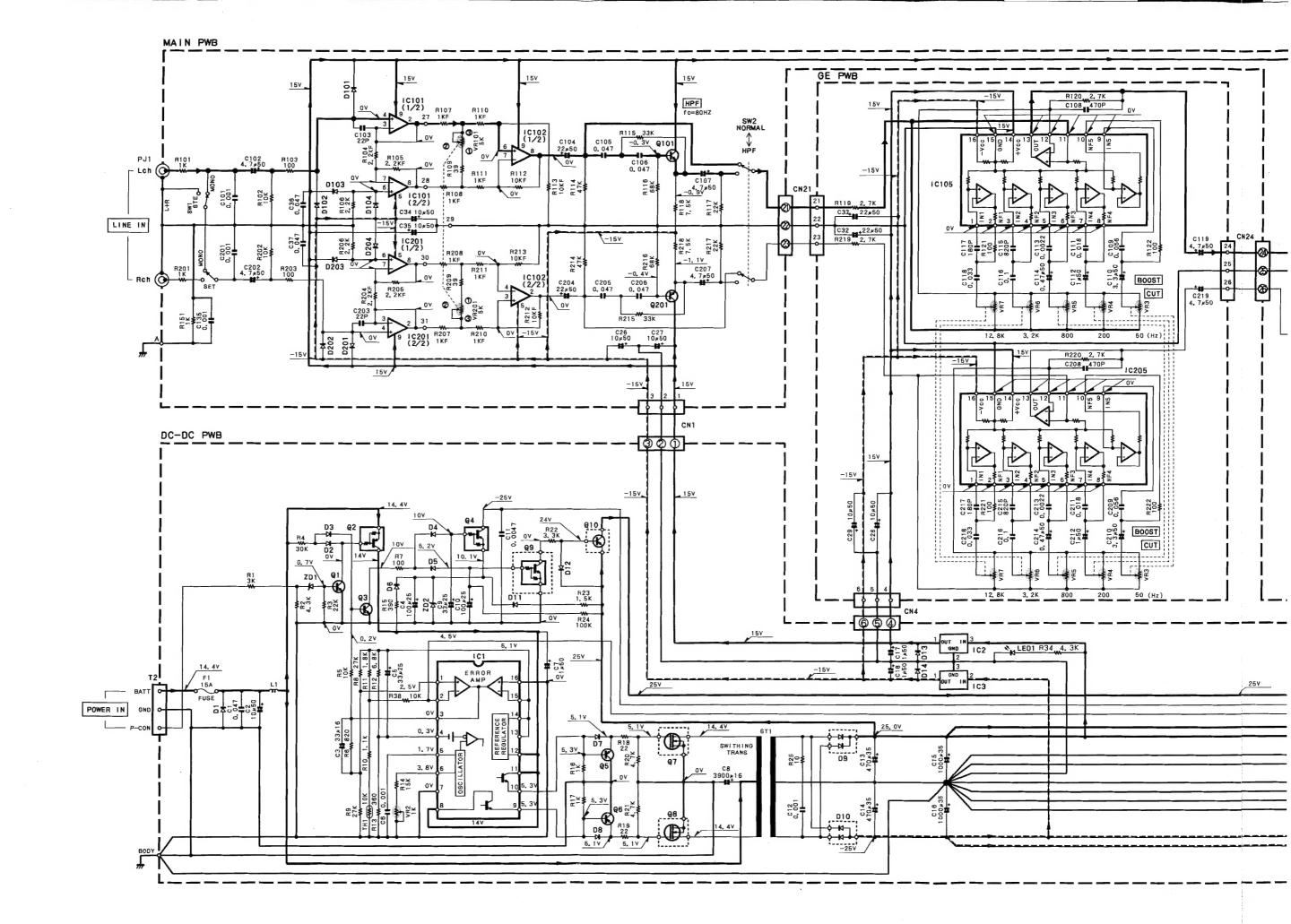




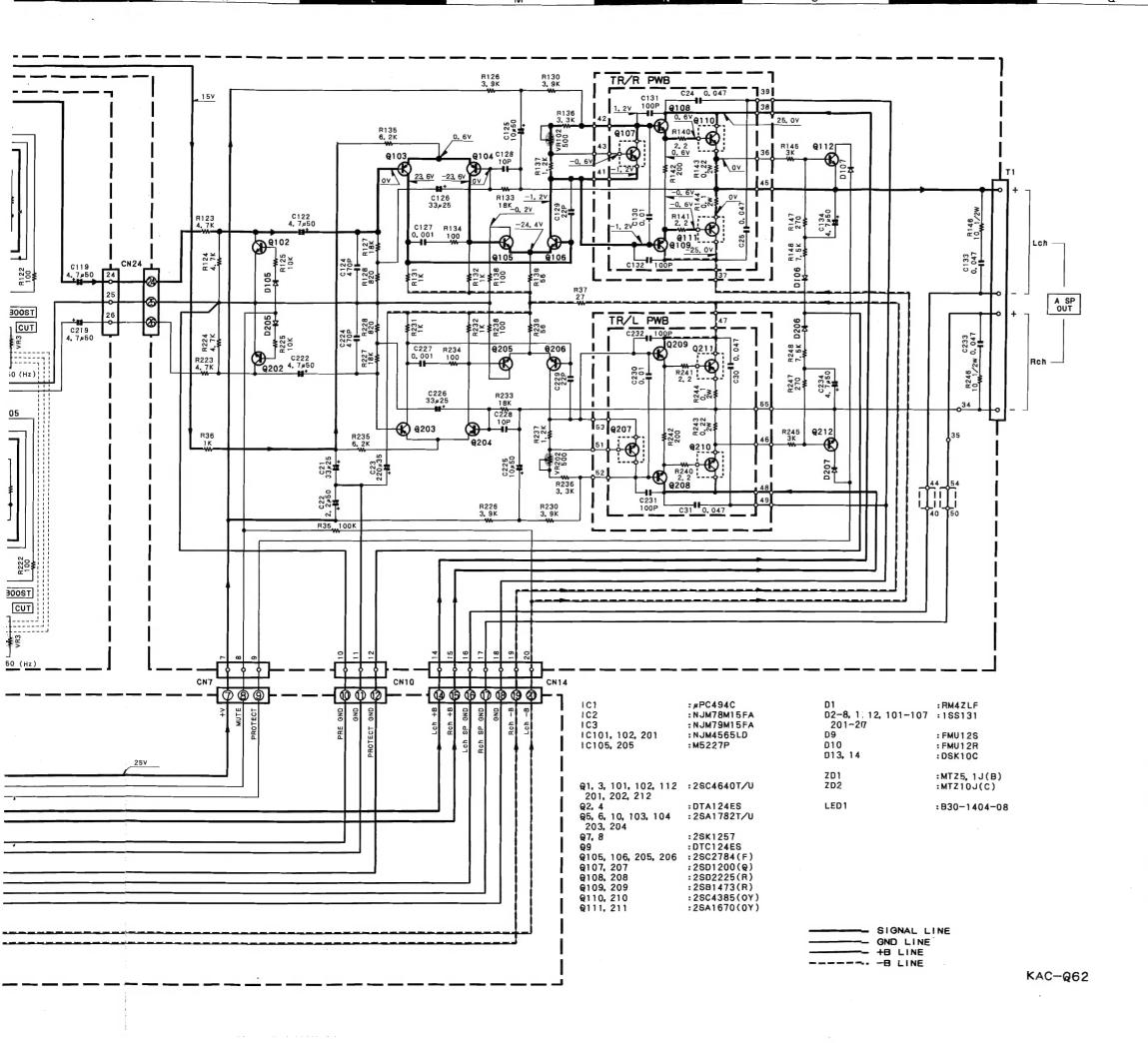


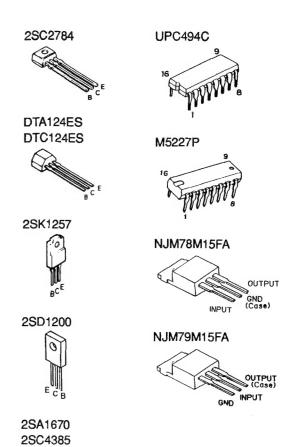
Refer to the schematic diagram for the values of resistors and capacitors.





D





DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels

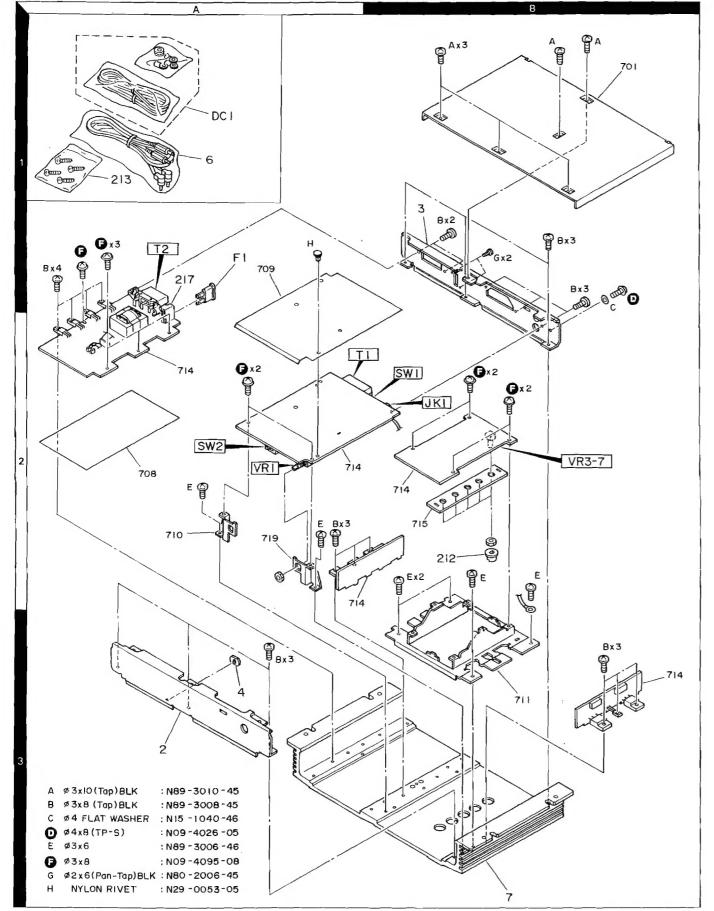
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). A indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



# KAC-Q62 KAC-Q62

# **EXPLODED VIEW**



**PARTS LIST** 

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnes dans le Parts No. ne sont pas fournis. Teile ohne Parts No. werden nicht geliefert.

KAC-Q62 (W02-1438-08)

Ref. No.	Address	New Parts	Parts No.	Description	Desti- Re- nation mark
参照番号	位 置	新	部品番号	部品名/規格	仕 向 備者
			K	AC-Q62	
2 3	3A 1B	*	A64-0353-08 A84-0050-08	FRONT PANEL REAR PANEL	
4	3A	*	B19-0874-08 B46-0100-30 B64-0371-00 B64-0372-00	LED FILTER WARRANTY CARD INST.MANUAL INST.MANUAL	K E
6 DC1	1 A 1 A	*	E30-4175-08 E30-4071-08	RCA PIN CORD SET CORD SET	E
7 F1	3B 1 A	*	F01-1442-08 F05-1537-05	HEAT SINK FUSE (15A)	
-		*	H10-4436-08 H25-0336-04 H25-0341-04 H54-0173-08 H64-0187-08	PACKING P.E BAG (180X270X0.06T) P.E BAG (320X450X0.04T) ITEM CARTON CASE OUTER CARTON CASE	
212	2B		K29-5574-08	KNØB	
213 A B C D	1A 1B 2B,3B 2B 1B		N99-1603-08 N89-3010-45 N89-3008-45 N15-1040-46 N09-4026-05	SCREW SET BIND B-TITE SCREW (3X10) BIND B-TITE SCREW (3X8) WASHER (M4) CUP S-TITE SCREW (4X8)	
E F G H	2A 2B 1B 1A		N89-3006-46 N09-4095-08 N80-2006-45 N29-0053-05	BIND B-TITE SCREW (3X6) FLANGE B-TITE SCREW (3X8) PAN T.P SCREW (2X6) NYLON RIVET	
			P.C. BOARD	ASSY (W02-1438-08)	
LED1			B30-1404-08	LED	
C1 C2 C3 C4 C5			CK45FF1H473Z CE04DW1H100M C90-2774-08 CE04DW1E101M CE04DW1E330M	CERAMIC   0.047UF   Z   ELECTRO   10UF   50WV   NP-ELECT   33UF   16WV   ELECTRO   100UF   25WV   ELECTRO   33UF   25WV	
06 07 08			CF92V1H102J CE04DW1H010M C90-2786-08	MF 1000PF J ELECTRO 1.0UF 50WV LED	
C9 C10			CE04DW1E330M CE04DW1E101M	ELECTRO 33UF 25WV ELECTRO 100UF 25WV	
C11 C12 C13 ,14 C15 ,16 C17 ,18			CF92V1H472J CF92V1H102J CE04DW1V471M CE04DW1V102M CE04DW1H010M	MF 4700PF J MF 1000PF J ELECTRO 470UF 35WV ELECTRO 1000UF 35WV ELECTRO 1.0UF 50WV	
C21 C22 C23 C24 ,25 C26 -29			CE04DW1E330M CE04DW1H2R2M CE04DW1V221M CF92V1H473J CE04DW1H100M	ELECTRO 33UF 25WV ELECTRO 2.2UF 50WV ELECTRO 220UF 35WV MF 0.047UF J ELECTRO 10UF 50WV	
C30 ,31 C32 ,33 C34 ,35			CF92V1H473J CE04DW1H220M CE04DW1H100M	MF 0.047UF J ELECTRO 22UF 50WV ELECTRO 10UF 50WV	

E: Europe W: Without Europe P: Canada X:Australia K: U.S.A. and Canada M: Without Europe, U.S.A. and Canada

#### × New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnes dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

(W02-1438-08)

Ref. No.	Address New	Parts No.	D	(W02-1438-08
Ref. No. 参照番号	Address New Parts 位置新	s	Description 部品名/規格	Desti-Re- nation marks 仕 向備考
C36 ,37 C101 C102 C103 C104	POC 100 W	CF92V1H473J CF92V1H102J CE04DW1H4R7M CC45FCH1H220J CE04DW1H220M	MF 0.047UF J MF 1000PF J ELECTRO 4.7UF 50WV CERAMIC 22PF J ELECTRO 22UF 50WV	1-11/100
C105,106 C107 C108 C109 C110		CF92V1H473J CE04DW1H4R7M CF92V1H471J CF92V1H563J CE04DW1H3R3M	MF 0.047UF J ELECTRO 4.7UF 50WV MF 470PF J MF 0.056UF J ELECTRO 3.3UF 50WV	
C111 C112 C113 C114 C115		CF92V1H183J CE04DW1H010M CF92V1H222J CE04DW1HR47M CF92V1H821J	MF 0.018UF J ELECTRO 1.0UF 50WV MF 2200PF J ELECTRO 0.47UF 50WV MF 820PF J	
C116 C117 C118 C119 C122		CF92V1H104J CK45FB1H181K CF92V1H333J CE04DW1H4R7M CE04DW1H4R7M	MF 0.10UF J CERAMIC 180PF K MF 0.033UF J ELECTRO 4.7UF 50WV ELECTRO 4.7UF 50WV	
C124 C125 C126 C127 C128		CF92V1H471J CE04DW1H100M CE04DW1E330M CF92V1H102J CC45FCH1H100D	MF 470PF J ELECTRO 10UF 50WV ELECTRO 33UF 25WV MF 1000PF J CERAMIC 10PF D	
C129 C130 C131,132 C133 C134		CC45FCH1H220J CF92V1H103J CF92V1H101K CF92V1H473J CE04DW1H4R7M	CERAMIC 22PF J MF 0.010UF J MF 100PF K MF 0.047UF J ELECTRO 4.7UF 50WV	
C135 C201 C202 C203 C204		CF92V1H102J CF92V1H102J CE04DW1H4R7M CC45FCH1H220J CE04DW1H220M	MF 1000PF J MF 1000PF J ELECTRO 4.7UF 50WV CERAMIC 22PF J ELECTRO 22UF 50WV	
C205,206 C207 C208 C209 C210		CF92V1H473J CE04DW1H4R7M CF92V1H471J CF92V1H563J CE04DW1H3R3M	MF 0.047UF J ELECTRO 4.7UF 50WV MF 470PF J MF 0.056UF J ELECTRO 3.3UF 50WV	
C211 C212 C213 C214 C215		CF92V1H183J CE04DW1H010M CF92V1H222J CE04DW1HR47M CF92V1H821J	MF 0.018UF J ELECTRO 1.0UF 50WV MF 2200PF J ELECTRO 0.47UF 50WV MF 820PF J	
C216 C217 C218 C219 C222		CF92V1H104J CK45FB1H181K CF92V1H333J CE04DW1H4R7M CE04DW1H4R7M	MF 0.10UF J CERAMIC 180PF K MF 0.033UF J ELECTRO 4.7UF 50WV ELECTRO 4.7UF 50WV	
C224 C225 C226 C227 C228		CF92V1H471J CE04DW1H100M CE04DW1E330M CF92V1H102J CC45FCH1H100D	MF 470PF J ELECTRO 10UF 50WV ELECTRO 33UF 25WV MF 1000PF J CERAMIC 10PF D	

**PARTS LIST** 

E: Europe W: Without Europe P: Canada X:Australia K: U.S.A. and Canada M: Without Europe, U.S.A. and Canada

⚠ indicates safety critical components.

# **PARTS LIST**

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnes dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

(W02-1438-08)

Ref. No.	Address	New Parts	Parts No.	Description	Re- mark
参照番号	位 置	新	部品番号	部品名/規格	備老
C229 C230 C231,232 C233 C234			CC45FCH1H220J CF92V1H103J CF92V1H101K CF92V1H473J CE04DW1H4R7M	CERAMIC 22PF J MF 0.010UF J MF 100PF K MF 0.047UF J ELECTRO 4.7UF 50WV	
JK1 T1 T2	2B 2A 1A	*	E63-0824-08 E70-0817-08 E70-0806-08	PIN JACK (2P) TERMINAL (4P) TERMINAL (3P)	
217	1 A		J13-0602-05	FUSE HOLDER	
L1 ST1		*	L33-0994-08 L19-0539-08	SN COIL SWITCHING TRANS	
R104,105 R107,108 R110,111 R112,113 R143			RN14BK2C2201F RN14BK2C1001F RN14BK2C1001F RN14BK2C1002F RS14KB3DR22J	RN 2.20K F 1/6W RN 1.00K F 1/6W RN 1.00K F 1/6W RN 10.0K F 1/6W FL-PROOF RS 0.22 J 2W	
R144 R146 R204,205 R207,208 R210,211			R92-2110-08 R514KB2H100J RN14BK2C2201F RN14BK2C1001F RN14BK2C1001F	METAL-PLATE 0.1 K 2W FL-PROOF RS 10 J 1/2W RN 2.20K F 1/6W RN 1.00K F 1/6W RN 1.00K F 1/6W	
R212,213 R243 R244 R246 VR1			RN14BK2C1002F RS14KB3DR22J R92-2110-08 RS14KB2H100J R10-0626-08	RN 10.0K F 1/6W FL-PROOF RS 0.22 J 2W METAL-PLATE 0.1 K 2W FL-PROOF RS 10 J 1/2W POTENTIOMETER (5KBX2)	
VR2 VR3 -7 VR102,202		*	R12-1830-08 R10-0647-08 R12-1829-08	TRIMMING POT. (1K) POTENTIOMETER (5KBX2) TRIMMING POT. (500)	
SW1 ,2			S62-0826-08	SLIDE SWITCH	
D1 D2 -8 D9 D10 D11 ,12		*	RM4ZLF 1SS131 FMU12S FMU12R 1SS131	DIODE DIODE DIODE DIODE	
D13 ,14 D101-107 D201-207 IC1 IC2			DSK10C 1SS131 1SS131 UPC494C NJM78M15FA	DIODE DIODE DIODE IC(SWITCHING REGULATOR) IC(VOLTAGE REGULATOR/ +15V)	
IC3 IC101,102 IC105 IC201 IC205		*	NJM79M15FA NJM4565LD M5227P NJM4565LD M5227P	IC(VOLTAGE REGULATOR/ -15V) IC IC(5CH GRAPHIC EQUALIZER) IC IC(5CH GRAPHIC EQUALIZER)	
91 92 93 94 95,6		* *	2SC4640T/U DTA124ES 2SC4640T/U DTA124ES 2SA1782T/U	TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR	
Q7 ,8 Q9			2SK1257 DTC124ES	TRANSISTOR DIGITAL TRANSISTOR	

E: Europe W: Without Europe P: Canada X:Australia K: U.S.A. and Canada M: Without Europe, U.S.A. and Canada

18

# **PARTS LIST**

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnes dans le Parts  ${\it No.}$  ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

(W02-1438-08)

Ref. No.	Address New Part		Description	Desti- Re- nation mark
参照番号	位置新		部品名/規格	仕 向 備考
Q10 Q101,102 Q103,104 Q105,106 Q107	* * *	2SA1782T/U 2SC4640T/U 2SA1782T/U 2SC2784(F) 2SD1200(Q)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	
Q108 Q109 Q110 Q111 Q112	*	2SD2225(R) 2SB1473(R) 2SC4385(0,Y) 2SA1670(0,Y) 2SC4640T/U	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	
Q201,202 Q203,204 Q205,206 Q207 Q208	* *	2SC4640T/U 2SA1782T/U 2SC2784(F) 2SD1200(Q) 2SD2225(R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	
Q209 Q210 Q211 Q212 TH1	*	2SB1473(R) 2SC4385(0,Y) 2SA1670(0,Y) 2SC4640T/U DTN-D103K4D-NHA	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR THERMISTER 10K	
ZD1 ZD2		MTZ5.1J(B) MTZ10J(C)	ZENER DIODE ZENER DIODE	

E: Europe W: Without Europe P: Canada X:Australia K: U.S.A. and Canada M: Without Europe, U.S.A. and Canada

# KAC-Q62

# **SPECIFICATIONS**

Specifications subject to change without notice.

Specifications subject to change without notice.	
Audio section	
Max power output (4 $\Omega$ )	
Normal	80 W × 2
Bridge	180 W × 1
Rated power output (4 $\Omega$ )	
Normal	40 W $\times$ 2 { 20 Hz $\sim$ 20 kHz, less than
	0.08 % THD)
Bridge	110 W × 1 ( 1 kHz, 0.08 % THD)
Rated power output (2 Ω)	
Normal	55 W × 2 ( 1kHz, 0.8 % THD)
Frequency Response	
Signal to Noise Ratio	
Sensitivity (MAX)	0.15 V ( rated output)
Sensitivity (MIN)	3.0 V ( rated output)
Input impedance	10 kΩ
Damping Factor(100 Hz)	More than 100
EQ section	
Equalizer Center Frequency	50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 12.8 kHz
Frequency Range	
General	
Operating voltage	14.4 V ( 11 – 16 V allowable)
Current consumption	
Dimensions (WXHXD)	220 X 48 X 200 mm

# KENWOOD CORPORATION Alive Milake, 2-5, 1-chome Shibuya, Shibuya-ku, Tokyo 150. Japan

8-11/16 X 1-7/8 X 7-7/8 in.

KENWOOD SERVICE CORPORATION
PO. BOX 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745. U.S.A.
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L51 188
KENWOOD ELECTRONICS LATIN AMERICA S.A.
P.O. BOX 55-2791. Piso 6 Plaza Chase, Ct. 47 y Aquilino de la Guardia. Panama
Republic de Panama
TRIO-KENWOOD U.K. LIMITED
Kenwood House, Dwight Road, Wattord, Herts, WD1 8EB, United Kingdom
KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium
KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker Str. 15, 63150 Heusenstamm, Germany
TRIO-KENWOOD FRANCE S.A.
13 Boulevard Ney, 75018 Paris, France
KENWOOD ELECTRONICS ITALIA S.p.A.
Via G. Sirtori, 7/9 20129 Milano, Italy
KENWOOD ESPANA S.A.
Bolivia 239-08020 Barcelona, Spain
KENWOOD ELECTRONICS AUSTRALIA PTY, LTD. (A C N 001 499 074)
PO. BOX 504, 8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140, Australia
KENWOOD & LEE ELECTRONICS, LTD.
Unit 3712-3724, Level 37 Tower 1, Metroplaza, 223 Hing Fong Road,
Kwai Fong N.T. Hong Kong
KENWOOD ELECTRONICS SINGAPORE PTE LTD
No 1 Genting Lane # 07-00, KENWOOD Building, Singapore, 1334
KENWOOD ELECTRONICS (MALAYSIA) SDN BHD
10th Floor, Block B, Wisma Semantan, No. 12, Jalan Gelenggang, Bukit Damansara,
'50490 Kuala Lumpur, Malaysia